

WHAT IS CLAIMED IS:

1. A circuit operation simulating apparatus comprising:

simulation means for simulating operation of a circuit based on circuit information on a configuration and characteristics of the circuit;

5 storage means for storing encrypted circuit information;

stored circuit information decrypting means for reading out the encrypted circuit information from the storage means, decrypting the circuit information, and providing the decrypted circuit information to the simulation means;

10 intermediate data encrypting means for encrypting intermediate data generated during a simulation by the simulation means and storing the encrypted intermediate data in the storage means; and

intermediate data decrypting means for reading out the encrypted intermediate data from the storage means, decrypting the intermediate data, and providing the decrypted intermediate data to the simulation means.

15

2. The circuit operation simulating apparatus of claim 1, wherein the stored circuit information decrypting means and the intermediate data decrypting means are combined together.

20 3. The circuit operation simulating apparatus of claim 1, including intermediate data deleting means for deleting the intermediate data stored in the storage means, after the simulation has been terminated.

4. A circuit operation simulating apparatus comprising:

✓

25 simulation means for simulating operation of a circuit based on circuit information

on a configuration and characteristics of the circuit;

supplied circuit information decrypting means for decrypting supplied circuit information encrypted by a first encryption technique;

stored circuit information encrypting means for encrypting, by a second encryption
5 technique, the circuit information decrypted by the supplied circuit information decrypting means;

storage means for storing the circuit information encrypted by the second encryption technique; and

stored circuit information decrypting means for reading out the circuit information
10 encrypted by the second encryption technique from the storage means, decrypting the circuit information, and providing the decrypted circuit information to the simulation means.

5. The circuit operation simulating apparatus of claim 4, wherein the encryption by
15 the first encryption technique has an encryption strength higher than that by the second encryption technique.

6. The circuit operation simulating apparatus of claim 4, wherein the encryption by
the second encryption technique requires shorter time for encryption and decryption than
20 that by the first encryption technique.

7. The circuit operation simulating apparatus of claim 4, wherein the circuit information decrypted by the supplied circuit information decrypting means is not stored in the storage means but encrypted by the stored circuit information encrypting means.

8. The circuit operation simulating apparatus of claim 4, including:

intermediate data encrypting means for encrypting intermediate data generated during a simulation by the simulation means and for storing the encrypted intermediate data in the storage means; and

intermediate data decrypting means for reading out the encrypted intermediate data from the storage means, decrypting the intermediate data, and providing the decrypted intermediate data to the simulation means,

wherein the stored circuit information encrypting means and the intermediate data encrypting means are combined together.

9. A circuit operation simulating apparatus comprising:

simulation means for simulating operation of a circuit based on circuit information on a configuration and characteristics of the circuit; and

storage means for storing encrypted circuit information,

wherein the circuit operation simulating apparatus is configured to be able to incorporate:

stored circuit information decrypting means for decrypting the encrypted circuit information read out from the storage means and for providing the circuit information to the simulation means;

intermediate data encrypting means for encrypting intermediate data generated during a simulation by the simulation means and for storing the encrypted intermediate data in the storage means; and

intermediate data decrypting means for decrypting the encrypted intermediate data read out from the storage means and for providing the decrypted intermediate data to the simulation means.

10. A circuit operation simulating apparatus comprising: 4

simulation means for simulating operation of a circuit based on circuit information on a configuration and characteristics of the circuit; and

5 storage means for storing encrypted circuit information,

wherein the circuit operation simulating apparatus is configured to be able to incorporate:

supplied circuit information decrypting means for decrypting supplied circuit information encrypted by a first encryption technique;

10 stored circuit information encrypting means for encrypting, by a second encryption technique, the circuit information decrypted by the supplied circuit information decrypting means, and for storing the encrypted circuit information in the storage means; and

stored circuit information decrypting means for decrypting the circuit information read out from the storage means and encrypted by the second encryption technique, and for

15 providing the decrypted circuit information to the simulation means.

11. A circuit operation simulating method comprising: 6

a simulation step of simulating operation of a circuit based on circuit information on a configuration and characteristics of the circuit;

20 a stored circuit information decrypting step of reading out encrypted circuit information from storage means and decrypting the circuit information for use in the simulation step;

an intermediate data encrypting step of encrypting intermediate data generated during a simulation in the simulation step and of storing the encrypted intermediate data in

25 the storage means; and

an intermediate data decrypting step of reading out the encrypted intermediate data from the storage means and decrypting the intermediate data for use in the simulation step.

12. A circuit operation simulating method comprising: 6

5 a simulation step of simulating operation of a circuit based on circuit information on a configuration and characteristics of the circuit;

a supplied circuit information decrypting step of decrypting supplied circuit information encrypted by a first encryption technique;

a stored circuit information encrypting step of encrypting, by a second encryption
10 technique, the circuit information decrypted in the supplied circuit information decrypting step and of storing the encrypted circuit information in storage means; and

a stored circuit information decrypting step of reading out the circuit information encrypted by the second encryption technique from the storage means and of decrypting the circuit information for use in the simulation step.

15

13. A circuit operation simulating program which makes a computer execute:

a simulation step of simulating operation of a circuit based on circuit information on a configuration and characteristics of the circuit;

a stored circuit information decrypting step of reading out encrypted circuit
20 information from storage means and decrypting the circuit information for use in the simulation step;

an intermediate data encrypting step of encrypting intermediate data generated during a simulation in the simulation step and of storing the encrypted intermediate data in the storage means; and

25 an intermediate data decrypting step of reading out the encrypted intermediate data

from the storage means and decrypting the intermediate data for use in the simulation step.

9

14. A circuit operation simulating program which makes a computer execute:

a simulation step of simulating operation of a circuit based on circuit information

5 on a configuration and characteristics of the circuit; and

a supplied circuit information decrypting step of decrypting supplied circuit information encrypted by a first encryption technique,

a stored circuit information encrypting step of encrypting, by a second encryption technique, the circuit information decrypted in the supplied circuit information decrypting

10 step and of storing the encrypted circuit information in storage means, and

a stored circuit information decrypting step of reading out the circuit information encrypted by the second encryption technique from the storage means and of decrypting the circuit information for use in the simulation step.

9

15 15. A circuit operation simulating system for simulating operation of a circuit based on supplied circuit information on a configuration and characteristics of the circuit,

the system comprising:

encryption means for encrypting circuit information to be supplied;

transmission means for transmitting the encrypted circuit information via a

20 network;

reception means for receiving the transmitted circuit information;

storage means for storing the received circuit information;

stored circuit information decrypting means for reading out the encrypted circuit information from the storage means and decrypting the circuit information;

25 simulation means for receiving the decrypted circuit information from the stored

circuit information decrypting means and simulating operation of the circuit based on the received circuit information;

intermediate data encrypting means for encrypting intermediate data generated during a simulation by the simulation means and storing the encrypted intermediate data in the storage means; and

intermediate data decrypting means for reading out the encrypted intermediate data from the storage means, decrypting the intermediate data, and providing the decrypted intermediate data to the simulating means.

10 16. A circuit operation simulating system for simulating operation of a circuit based on supplied circuit information on a configuration and characteristics of the circuit, the system comprising:

first encryption means for encrypting circuit information to be supplied, by a first encryption technique;

15 transmission means for transmitting the encrypted circuit information via a network;

reception means for receiving the transmitted circuit information;

first decrypting means for decrypting the received circuit information;

20 second encryption means for encrypting, by a second encryption technique, the circuit information decrypted by the first decrypting means;

storage means for storing the circuit information encrypted by the second encryption technique;

25 second decrypting means for reading out the circuit information encrypted by the second encryption technique from the storage means and for decrypting the circuit information; and

simulation means for receiving the decrypted circuit information from the second decrypting means and simulating operation of the circuit based on the received circuit information.

\\

5 17. A circuit operation simulating system for simulating operation of a circuit based on supplied circuit information on a configuration and characteristics of the circuit, the system comprising:

first encryption means for encrypting circuit information to be supplied, by a first encryption technique;

10 second encryption means for further encrypting, by a second encrypted technique, the circuit information encrypted by the first encryption technique;

transmission means for transmitting the circuit information encrypted by the second encryption technique, via a network;

reception means for receiving the transmitted circuit information;

15 first decrypting means for decrypting the received circuit information encrypted by the second encryption technique and for outputting the circuit information encrypted by the first encryption technique;

storage means for storing the circuit information output from the first decrypting means and encrypted by the first encryption technique;

20 second decrypting means for reading out the circuit information encrypted by the first encryption technique from the storage means and for decrypting the circuit information; and

simulation means for receiving the decrypted circuit information from the second decrypting means and simulating operation of the circuit based on the received circuit
25 information.